

SUSTAINABLE DEVELOPMENT – A NECESSITY

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***Abstract:** This paper debates the problems related to the economic development with the preservation of the natural environment. Modern world is facing a grave climatic crisis that could alter the climate and the general balances regulating the systems functioning on our planet. The authors try to advocate the need for an equilibrium between the economic necessity and the ecology as both are essential for the wellbeing of the future generations.*

***Keywords:** sustainable development, ecology*

INTRODUCTION

Sustainable Development is a complex concept that was defined by the United Nations Organization as a set of goals for all countries to ensure a better future for the entire humankind.

The most common definition is that Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

This general objective implies many individual tasks, some of which are very difficult to implement, especially in the current difficult international context marked by political and economic instability.

Sustainable development means 17 general goals that are to be met. These are:

1. End poverty for all;
2. Freedom from hunger;
3. Health and wellbeing;
4. Quality Education;
5. Gender equality;
6. Clean water and sanitation

7. Sustainable energy for all
8. Decent work & economic development
9. Innovation and infrastructure;
10. Reducing inequalities;
11. Sustainable cities and communities;
12. Sustainable consumption & production
13. Action on climate change
14. Healthy oceans
15. Sustainable ecosystems
16. Peace and justice
17. Global partnership

This list contains in fact the most important objectives of the world today and they are linked to the wellbeing of the entire humanity.

All these problems are closely linked to each other and many of them are interlaced, because their solutions are possible only if all are solved.



Fig 1 The 17 goals define by UN as essential for the world sustainable development

For example, it is not possible to obtain a sustainable development in a world where there are countries and regions where people are poor and hungry. There is no chance to have sustainable ecosystems in places where there is no sustainable energy for all.

These goals seem very reasonable for most people if they are looked at from a theoretical point of view. But their implementation is subject to a lot of political and social opposition.

A global partnership would be a mandatory condition to solve all the other 16 tasks, but, in recent years, there has been a major setback in this direction. The pandemic crises, the economic turmoil, and now the wars in Ukraine and the Middle East, changed the international arena from a rela-

tively peaceful state to one of deep distrust and confrontation at all levels. Evidently, such generous goals are impossible to meet in a world where there are wars and unsolved political crises.

Also, the inequalities reduction is not happening. On the contrary, there is an even more unbalanced situation between rich and poor countries, and even inside developed societies, there is a growing inequity between people.

The recent pandemic showed the importance of a powerful medical system and stressed the fact that it has to be global, otherwise humanity cannot fight a disease only in the economical developed countries and leave the poor nations to dye. Such a strategy could produce large migration and wars.

Another aspect that was highlighted by this Covid19 pandemic, is the great importance of the education & the cultural level. Even if the medical scientist quickly discovered a vaccine that proved quite effective in combating the illness, the bad influence of uncontrolled social media campaigns produced a massive rejection of the vaccine and of any medical treatment especially among poor cultured people with low educational level.

Not solving all these United Nations Organization tasks will probably lead to one of the bad case scenarios that could end our civilization and could destroy the whole earth. The most probable such catastrophic events are:

- A nuclear war between the most powerful nations/alliances in our world;
- A global pandemic that our medical system will be unable to control;
- An asteroid impact that humanity's rocket technology will not be capable to depart;
- The Artificial Intelligence development out of human control;
- A cosmic event nearby earth producing high level radiations that we cannot shield;
- A major climate disaster destroying our environment and our ability to produce food;

Out of all these, the catastrophic climate change is the most probable, and unfortunately nowadays humans seem quite incapable to do serious actions to counter it.

ENVIRONMENT PROTECTION

A particularly debated subject with a lot of argued pros and cons is the protection of the environment (goals 11 to 15).

The main cause of this debate is the fact things that have to be done are difficult to implement and affect the economic and political interests of a lot of powerful people and entities.

It is quite simple to understand that rich petroleum corporations and big exporting countries are not at all favorable to changing cars from traditional petrol/diesel engines to electric ones.

Also, giving up heating with fossil fuels will be a big loss for the same entities, thus they use great amounts of money to pay for pseudo-scientific studies trying to prove that there is no climate change or it is not caused by human activity, but by natural phenomena (e.g. sun activity, volcanoes, etc.).

There is also a very active lobby on social media against ecologists trying to fuel the popular discomfort caused by the needed changes. Most people are quite unhappy that they have to pay environmental protection taxes, have to buy new cars soon, or have to invest in new heating systems for their houses.

There is also a big discontent regarding the fact that the ecological policy in many countries has some hypocrisy. Most tasks have to be accomplished by ordinary people while big industrial enterprises do not do their best to reduce their pollution.

It is not normal to ask everybody to pay taxes for the nature protection, but real damaging industry to be pardoned because the owners have political protection somewhere in the leadership.

On this unfavorable opinion, some populist politicians build an anti-change discourse and win power & influence to stop or slow down good ecological measures.

These things represent a major setback in attaining the environmental protection goals.

The main solution for the progress in reaching all these goals is innovation because only avant-garde technology can give both comfort to the people and protection to the environment.

There are serious problems to be solved with infrastructure in the case of some important changes. For example, the current electric power production is not sufficient to top the massive consumption needed for the billions of electric cars. Also, the electric power networks are insufficient to ensure the distribution.

Renewable energy is a source, but the sun, wind, and waves must be captured and converted into electricity with installations that are still expensive and their production is sometimes not environmental friendly. Nuclear power is not accepted as clean by some countries. Thus there are still many

things to be done in scientific research & technology.

For example, a big economic power – Germany tried to implement an ambitious ecologic policy in the last few years by renouncing both to its nuclear and coal power plants. This was not well supported by the industry and finally, Germany had to import electricity from the neighboring France, which has a lot of nuclear power plants, and consequently is not so strictly dependent on renewable energy sources.

One problem not easy to solve is the enlargement of electric network so the billions electric cars can have enough places to charge their batteries. There are huge investments needed to increase power transportation capacity to insure enough energy for every car both at the owner house and on the routes.

Many people are very pessimistic about the possibility to switch so rapidly from fuel to electric cars, because there are some unsolved problems.

First of all the batteries need same materials that are not easy to find and their mining is not at all ecofriendly. Second, the capacity of these batteries is less than the needs of the usual customer, therefore the car autonomy is limited. Third: the security of these cars is not the best, because unfortunately the batteries can explode much easier than a fuel tank.

There are no solutions yet for planes and ships. It is probable that the hydrogen will be used as fuel, but researches are only at the beginning. Production of hydrogen from water is not as simple as it looks. Big factories must be built and technology should be optimized.

Also, the use of hydrogen is problematic because of security issues. It is highly flammable and consequently, hydrogen containers are dangerous. A plane crash could lead to a big disaster like the Hindenburg Zeppelin in 1937.

EDUCATION

It is common ground to state that education is an essential task to be fulfilled. The people, especially the young ones must be taught that protecting the environment is an essential issue for the next decades.

Only people with a good understanding of the importance of preserving the environment will be able to discover and implement the necessary devices and systems to make sustainable development possible.

This is certainly a great and difficult task, but its importance is so big that no government should neglect it.

The education for change must be done in schools and outside it, using modern communication technology and the most popular ways to trans-

fer information, especially for the youngsters.

It is the simplest way to do such environmental education because usually kids are influenced through social media which is nowadays largely against the ecologic policy.

This opposition is quite easy to understand because many people do not understand the real urgency of protecting the nature. They just see the supplemental green taxes added to their expenses list, the fact they have to obey a lot of new rules like sorting the garbage etc.

People also find out that they will have to change their car in a few years and they will have to change their gas heating system with a costly heating pump.

Thus, it is needed a sustained educative effort using some teaching strategies based both on science and on children's natural sensitivity for the living beings in the nearby environment.

The combination of scientific facts with personal experiences must be wisely done, because if the professor just tells to the students empty phrases from the book they will not be able to understand the reality and the magnitude of the problem.

Some teachers are favorable to the use of multimedia materials as this usually well received by the youngsters. Here again, the selection of materials is essential because on the Internet there are a lot of fake news which are misleading the minds and the souls of the children.

Another important tool recommended to the educators is the use of experiments to illustrate the theoretical facts about the climate change, the air pollution, the environment devastation.

Such experiments could be done using a layout of a certain location where an industrial accident or human negligence harm the animals and plants symbolically represented in the setup.

There are also possibilities to make real experiments where pupils can see directly the effects of the polluters' activity on the environment. Such experiments involve the use of measuring instruments able to give good gaging over the situation.

A simple example of such an experiment is to use an air pollution measuring tool in order to detect the level of toxic substances near a street with heavy traffic and in a large park. Certainly, the differences will be eloquent.

Another easy to do experiment is do measurements to compare the situation of the water in a mountain spring and the water in a river especially after it crosses a big town or an industrial area.

Fortunately the recent pandemic of coronavirus has changed drastically the teaching technology, thus many professors do accept nowadays the modern tools in the educational process.

Now it is a current strategy to use Internet information to help educate the pupils and every teacher is basing his/hers educational strategy on multimedia instruments. Computers are a habitual part of teaching and many ITC devices (e.g., interactive whiteboard) become an ordinary tool in classes from kindergarten to faculty.

CONCLUSIONS

Sustainable Development with its 17 goals is a task for our generation and the next ones. It must be implemented by the entire human race through persistent and responsible work and it is mandatory for our survival.

Its implementation is conditioned by world peace and economic cooperation, both essential for successful research to reach the technologic progress necessary to combine the economic growth needs and the environment protection necessity.

It is a common remark that our planet is in danger, but it is not entirely true. During ages, Earth went through four massive mass extinctions and every time it came back as a life-hosting planet. The dominant species that lived before those extinctions were the ones wiped out.



Fig. 2 Tyrannosaurus Rex the ‘king’ of the world before the last mass extinction

Thus the real danger is that Homo Sapiens could disappear as did Tyrannosaurus Rex.

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